

- 1 What properties describe how substances react to form new substances?
- A elements
  - B chemical properties
  - C compounds
  - D physical properties
- 2 Which properties can be seen or measured without changing the material?
- A physical properties
  - B matter
  - C chemical properties
  - D elements
- 3 Which term describes the basic building blocks of matter?
- A hydrogen
  - B chemical properties
  - C matter
  - D elements
- 4 Aluminum and copper are \_\_\_\_\_ metals.
- A mixed
  - B alloys
  - C pure
  - D physical
- 5 The \_\_\_\_\_ of an object changes when the pull of gravity changes.
- A mass
  - B weight
  - C properties
  - D magnetisms

- 6 Which instrument measures the mass of an object?
- A balance
  - B beaker
  - C spring scale
  - D barometer
- 7 Magnetism is a \_\_\_\_\_ property.
- A chemical
  - B matter
  - C substance
  - D physical
- 8 The ability of a material to burn is a \_\_\_\_\_ property.
- A physical
  - B chemical
  - C balance
  - D state
- 9 Which statement correctly describes living things?
- A They are made mostly from just a few elements.
  - B They have equal amounts of each element.
  - C They are made mostly of iron and other metals.
  - D They have only oxygen and carbon in their bodies.
- 10 Which of these is a chemical property of iron?
- A its color
  - B its magnetism
  - C its ability to form rust
  - D its mass

- 11 Ninety-six percent of the human body is made of oxygen, nitrogen, hydrogen, and
- A silicon.
  - B carbon.
  - C sodium.
  - D nitrogen.
- 12 Which of the following is a chemical property of water?
- A It freezes at 0 degrees C.
  - B It changes to a gas at 100 degrees C.
  - C It does not burn.
  - D It can dissolve other substances.
- 13 What is the smallest part of a substance made from more than one atom that still has all the properties of the substance?
- A electron
  - B atom
  - C molecule
  - D proton
- 14 A(n) \_\_\_\_\_ is a negatively charged particle that moves around the nucleus of an atom.
- A electron
  - B proton
  - C neutron
  - D atom

- 15 What is the smallest particle of an element that has the properties of the element?
- A proton
  - B atomic number
  - C molecule
  - D atom
- 16 Which term describes the number of protons in an atom's nucleus?
- A atomic number
  - B atom
  - C proton
  - D element
- 17 \_\_\_\_\_ particles in an atom's nucleus are positively charged.
- A Atom
  - B Electron
  - C Neutron
  - D Proton
- 18 Elements in the \_\_\_\_\_ table are organized according to their chemical properties.
- A element
  - B periodic
  - C molecule
  - D group
- 19 Two atoms that have the same number of protons must be the same \_\_\_\_\_.
- A molecule
  - B group
  - C atom
  - D element

- 20 Computer images of \_\_\_\_\_ show they often appear in well-ordered arrays.
- A periodic
  - B properties
  - C atoms
  - D electrons
- 21 What is the smallest particle of an element that still has the properties of the element?
- A a molecule
  - B a proton
  - C an atom
  - D a compound
- 22 Which metal is a pure element?
- A brass
  - B copper
  - C steel
  - D bronze
- 23 What is the smallest part of the substance water that still has all the properties of water?
- A a molecule
  - B an atom
  - C a compound
  - D an electron

- 24 What are alloys?
- A groups of elements on the periodic table
  - B mixtures made when a solid dissolves in a liquid
  - C metals made by purifying rocks and minerals
  - D metals made by mixing two or more metals together
- 25 What could you notice from an image of the carbon atoms in graphite made by using a special electron microscope?
- A The atoms have different shapes.
  - B The atoms have different sizes.
  - C The atoms are in a well-ordered array.
  - D The atoms are in random positions.
- 26 How are the elements in the periodic table arranged?
- A by their names
  - B by their properties
  - C by their dates of discovery
  - D by their chemical symbols
- 27 The atomic number of an element is
- A the number of protons it has.
  - B the number of neutrons it has.
  - C the number of protons plus neutrons.
  - D the number of hydrogen atoms.

- 28 Which of these forms when atoms combine?
- A elements
  - B protons
  - C larger atoms
  - D molecules
- 29 Which of the following statements about atoms is true?
- A They can be seen with the unaided eye.
  - B They can be seen with a light microscope.
  - C No image of an atom has ever been produced.
  - D Images of atoms can be made with electron microscopes.
- 30 What characteristic was used to arrange the elements in the Periodic Table of the Elements?
- A atomic weight
  - B symbol
  - C molecular weight
  - D atomic number
- 31 The Periodic Table is arranged so that the elements in each column have similar
- A chemical properties.
  - B physical properties.
  - C atomic numbers.
  - D atomic weights.

- 32 Helium has an atomic number of two. What can be inferred about helium from this fact?
- A It has two neutrons.
  - B It has two protons.
  - C It has two atoms in each molecule.
  - D It has one proton and one neutron.
- 33 Which of the following is an alloy?
- A silver
  - B copper
  - C nickel
  - D brass
- 34 Which metal is a liquid at room temperature?
- A nickel
  - B mercury
  - C copper
  - D gold
- 35 Which property makes a metal useful in electrical devices?
- A being a conductor
  - B being malleable
  - C being shiny
  - D being a solid at room temperature
- 36 Which of the following is a property of a nonmetal?
- A being ductile
  - B being malleable
  - C being a poor conductor of electricity
  - D being a good conductor of heat



- 37 Which term describes a combination of two or more elements?
- A salt
  - B compound
  - C formula
  - D atom
- 38 Which substance forms when an acid and a base react?
- A compound
  - B salt
  - C element
  - D water
- 39 Which of the following terms describes symbols that show the number and kinds of elements in a compound?
- A compound
  - B molecule
  - C solution
  - D formula
- 40 What is the product of the mixing of hydrochloric acid and sodium hydroxide?
- A table salt
  - B sodium hydroxide
  - C crystals
  - D sodium metal

41 The compound that makes up 60 percent of the human body is \_\_\_\_\_.

A  $\text{CO}_2$

B  $\text{H}_2\text{O}$

C  $\text{NO}_2$

D  $\text{C}_6\text{H}_{12}\text{O}_6$

42 Two different compounds can contain the same \_\_\_\_\_.

- A element
- B molecule
- C hydrogen
- D atom

43 All salts can form \_\_\_\_\_.

- A cubes
- B squares
- C crystals
- D circles

44 One property of most salts is that they melt at \_\_\_\_\_ temperatures.

- A high
- B cold
- C low
- D medium

45 Which property do all salts have in common?

- A All salts form crystals.
- B All salts are poisonous.
- C All salts burn your skin.
- D All salts have a white color.

46 What are most salts made from?

- A at least one metal and one nonmetal
- B only metal elements
- C only nonmetal elements
- D a mixture of water and iron

47 The chemical formula for water is

- A  $\text{H}_2\text{O}$
- B  $\text{HO}$
- C  $\text{HO}_2$
- D  $\text{H}_2\text{O}_2$

48 Which of the following is a property of carbon dioxide?

- A It does not burn.
- B It is a white solid at room temperature.
- C It is sweet.
- D It is highly reactive.

49 Which compound makes up 60 percent of your body?

- A glucose
- B DNA
- C water
- D sodium chloride

50 A \_\_\_\_\_ has different materials placed together that are not chemically combined.

- A solute
- B solution
- C solvent
- D mixture

51 Which term describes a substance that is dissolved in another substance?

- A compound
- B solvent
- C solute
- D mixture

52 Which term describes a substance in which a different substance is dissolved?

- A solvent
- B solute
- C solution
- D molecule

53 A \_\_\_\_\_ is different substances placed together that are spread out evenly.

- A solution
- B solvent
- C solute
- D molecule

54 Salt water is an example of a \_\_\_\_\_.

- A mixture
- B molecule
- C material
- D compound

- 55 A \_\_\_\_\_ solution has a large amount of solute for the amount of solvent.
- A dilute
  - B mixture
  - C solubility
  - D concentrated
- 56 Chromatography can be used to \_\_\_\_\_ substances.
- A identify
  - B collect
  - C dissolve
  - D dilute
- 57 What compounds are not chemically combined?
- A solute
  - B solution
  - C mixture
  - D material
- 58 Which of these is a mixture that has one substance evenly dissolved in another substance?
- A a metal
  - B a compound
  - C a solution
  - D a molecule
- 59 Which of these is a solute in seawater?
- A salt
  - B water
  - C sand
  - D fish

- 60 What happens when a chemical change occurs?
- A Atoms change into energy.
  - B Atoms have a physical change.
  - C Atoms change into other kinds of atoms.
  - D Atoms rearrange to form matter with different properties.
- 61 Which of the following might be evidence of a chemical reaction?
- A formation of magnetism
  - B formation of a gas
  - C formation of gravity
  - D formation of new elements
- 62 Which of these is an example of matter that has gone through only a physical change?
- A copper that has been hammered into a sheet
  - B a potato that has been cooked
  - C iron that has changed to rust
  - D candle wax that has burned
- 63 Which change occurs when one kind of matter changes into a different kind of matter with different properties?
- A chemical
  - B material
  - C solubility
  - D physical

64 Which type of change occurs when the matter keeps the same chemical properties?

- A material
- B chemical
- C matter
- D physical

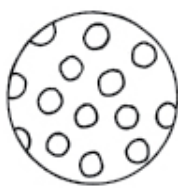
65 \_\_\_\_\_ has three states: solid, liquid, and gas.

- A Phase
- B Matter
- C Compound
- D Physical

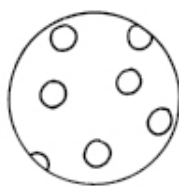
66 Models of the particles in solids, liquids, and gases are shown.



Solid



Liquid



Gas

Which list gives the correct order of the matter, from particles with the least energy to particles with the most energy?

- A solid, liquid, gas
- B solid, gas, liquid
- C gas, liquid, solid
- D gas, solid, liquid

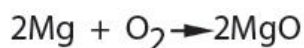
67 Which statement describes a solid?

- A It takes the shape of its container.
- B It has particles that flow over one another.
- C It has a definite shape and volume.
- D Its particles spread out evenly in a container.

- 68 What is the temperature at which a liquid turns into a solid?
- A boiling temperature
  - B freezing temperature
  - C sublimation temperature
  - D evaporation temperature
- 69 Which of these is an example of condensation?
- A water drying from an umbrella
  - B ice cream melting
  - C water freezing to form ice
  - D dew forming on the grass
- 70 \_\_\_\_\_ takes place when particles leave a liquid and become a gas.
- A Sublimation
  - B Evaporation
  - C Condesation
  - D Precipitation
- 71 Which of the following terms describes when a gas turns into a liquid?
- A evaporation
  - B sublimation
  - C melting
  - D condensation
- 72 What takes place when a solid changes directly into a gas?
- A freezing
  - B sublimation
  - C condensation
  - D precipitation



- 73 Magnesium reacts with oxygen and burns with a bright glow. The chemical equation for this reaction is shown below.



Magnesium    Oxygen    Magnesium Oxide

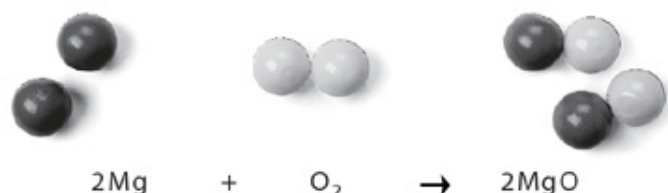
Which of these is a product of the reaction?

- A    magnesium
  - B    oxygen
  - C    magnesium and oxygen
  - D    magnesium oxide
- 74 What is water's state of matter at room temperature?
- A    vapor
  - B    solid
  - C    gas
  - D    liquid
- 75 By which process does a solid change to a gas?
- A    evaporation
  - B    melting
  - C    sublimation
  - D    condensation

76 Hydrogen peroxide can break apart to form water and oxygen gas. Which type of chemical reaction is this?

- A combination reaction
- B replacement reaction
- C decomposition reaction
- D physical reaction

77 At a high temperature, magnesium reacts with oxygen, as shown below.



Which are the reactants in this reaction?

- A magnesium and oxygen
  - B magnesium and magnesium oxide
  - C oxygen and magnesium oxide
  - D magnesium oxide and heat
- 78 Which of these is true about matter during a chemical reaction?
- A The mass of the reactants is not related to the mass of the products.
  - B The mass of the reactants is equal to the mass of the products.
  - C The mass of the reactants is less than the mass of the products.
  - D The mass of the reactants is greater than the mass of the products.

- 79 Which of the following can only be separated by a chemical process?
- A matter
  - B mixture
  - C solution
  - D compound
- 80 A \_\_\_\_\_ describes a substance used in a chemical reaction.
- A chemical equation
  - B reactant
  - C product
  - D matter
- 81 Which term describes a substance made during a chemical reaction?
- A product
  - B matter
  - C magnesium
  - D decomposition
- 82 A \_\_\_\_\_ is a formula that describes what happens during a chemical reaction.
- A product
  - B chemical equation
  - C solution
  - D combination reaction
- 83 Reactants are listed on the \_\_\_\_\_ side of the chemical equation.
- A top
  - B right
  - C bottom
  - D left

- 84 The Law of Conservation of Mass states that \_\_\_\_\_ cannot be created or destroyed during a chemical reaction.
- A matter
  - B reactants
  - C products
  - D replacement
- 85 What type of reaction describes when elements or compounds come together to form new compounds?
- A replacement
  - B decomposition
  - C combination
  - D chemical
- 86 Compounds split to form smaller compounds in a \_\_\_\_\_ reaction.
- A decomposition
  - B replacement
  - C chemical
  - D combination
- 87 In \_\_\_\_\_ reactions, compounds split apart and switch places.
- A combination
  - B chemical
  - C decomposition
  - D replacement
- 88 When do atoms rearrange to form new substances?
- A when a chemical change occurs
  - B when a solid melts
  - C when a physical change occurs
  - D when a liquid changes to gas

89 Which of the following is used to identify acids and bases?

- A indicator paper
- B bar magnet
- C flame test
- D filter paper

90 \_\_\_\_\_ properties can be used to separate some mixtures.

- A Mixture
- B Physical
- C Chemical
- D Gas

91 A(n) \_\_\_\_\_ is a uniform mixture of two substances.

- A base
- B acid
- C solution
- D replacement reaction